

Section 4. IDN Tables: use cases and requirements

Version 03 – 17 May 2022

A. Staff recommendation.

Second-level IDN tables offered under IDN variant TLDs **MUST** be harmonized.

Question: what does this imply?

Second-level IDN tables applicable for an IDN variant TLD set must be mutually coherent but not necessarily identical.

Question: What does this imply?

For two second-level variant labels s_1 and s_{1v1} under any TLD t_1 generated using the applicable IDN table for t_1 , these must also be variant labels under TLD t_{1v1} if generated by the applicable IDN table for t_{1v1} . This also implies that the complete set of second-level variant labels may not all be valid under all variant TLDs. For example, for the second level label s_{1v2} , the domain name $s_{1v2}.t_1$ may be valid, but due to difference in IDN tables for variant TLDs, $s_{1v2}.t_{1v1}$ may not be valid.

B. GNSO EPDP discussion

C. Proposed recommendations Subgroup VM

1. Should submission of IDN Tables be mandatory or expected under the policy? What the rationale?

2. If IDN tables should be submitted, should the IANA IDN Repository procedure be followed (<https://www.iana.org/help/idn-repository-procedure>)
3. Should the IDN Guidelines be followed or are they expected (but not mandatory) to be followed?

Proposed text:

Observations.

The variant management sub group agreed that it should be determined whether a topic should and can be addressed through a policy proposal or is relevant but is considered out of the policy scope and therefore should be considered advise to cctld managers, with a link background material regarding the topic. To do so, the group will first decide whether a topic/issue is a policy matter or not, and if not, whether the WG should /could include a reference as responsibility for the cctld manager. The goal is to ensure that ccTLD Managers involved in IDNs are aware of issues, risks and potential solutions to address the issues or mitigate the risks.

The Variant management notes that the term “IDN Table” may give rise to misunderstandings. Currently (May 2022) , the term IDN Table or IDN Tables is used in the context of second and lower level registration policies. For Top Level Domains the term RZ-LGR is used.

For purposes of this policy IDN table or Tables *“refer to policies for the registration of IDN under the ccTLD (IDN or ASCII) at second or lower level. The policies are referred to as “Label Generation Rulesets” (LGRs), and historically as “IDN tables” or “variant tables.”*¹ According to Guidelines for the Implementation of Internationalized Domain Names Version 3.0:

“lists of Unicode code points that are permitted for registration and will not accept the registration of any name containing an unlisted code point. Each such list will indicate the script or language(s) it is intended to support. If registry policy treats any code point in a list as a variant of any other code point, the nature of that variance and the policies attached to it will be clearly articulated.”

¹ See: <https://www.iana.org/help/idn-repository-procedure>

The WG notes that according to the current Guideline for the Implementation of Internationalized Domain Names (Version 3.0) (hereafter: IDN Guideline v3.0 or later), *“Top-level domain (“TLD”) registries supporting Internationalized Domain Names (“IDNs”) will do so in strict compliance with the requirements of the IETF protocol for Internationalized Domain Names in Applications.”* (Currently IDNA 2008).

The WG further notes that the scope for ccNSO developed policies is limited and excludes ccTLD registration policies. The WG also notes the statement in draft IDN Guideline version 4.0 that the IDN Guideline version 4.0 is intended as the best current practice for Country Code TLD registries.

Finally the WG notes in this context that under the proposed policy for selection of IDNccTLDs under the Overall Principle to *Preserve security, stability and interoperability of the DNS*, it is stated that *to the extent different and/or additional rules are implemented for IDN ccTLDs, these rules should:*

a.

b. Ensure adherence with the RFC 5890, RFC 5891, RFC 5892, RFC 5893

c.”

Advise.

Taking into account the aforementioned observations, and to enhance adherence with the relevant RFCs and to inform TLD Operators, including but not limited to other IDNccTLD Managers and stakeholders, in a transparent and accountable manner, the WG strongly advises that IDNccTLD Managers submit are expected (but not required) to publish *repertoires of Unicode code points that are permitted for registration under the selected IDNccTLD string and/or its variants* (hereafter: IDN Table) and be guided by the Guidelines for the Implementation of Internationalized Domain Names applicable at the time. The IDN Table or Tables are expected to be published and included in IANA IDN Practices Repository in accordance with the relevant and applicable procedures.

Further, it is expected that the registration of any domain name containing an unlisted code point will not be accepted.

If submitted, the IDN Table must be submitted and according to format required under the policy and procedures for the IANA IDN Practices Repository² at the time of the request of delegation of the selected IDNccTLD string and/or its variants is requested by the proposed IDNccTLD Manager.

If the same script/language combination is used in two or more Territories, cooperation between relevant parties in the relevant Territories is encouraged to define an IDN Table for that script/language combination. ICANN is advised either to facilitate these processes directly or indirectly.

The WG notes that according the current (2022) IANA IDN Repository procedure, the purpose of the repository is to publish IDN Tables that have been verified as coming from representatives of domain registries. Therefore, the ultimate responsibility for the content of the IDN Table for an IDNccTLD is with the IDNccTLD Manager. However, to ensure consistency across IDN Tables for the same script and/or language/script combinations and hence ensure security and stability of the DNS, IDNccTLD Managers are encouraged that prior to submission ICANN is requested to review the design of the proposed IDN Table on adherence with the relevant and applicable IDN Guidelines version. The results of the review will be shared with the relevant IDNccTLD Manager(s) to allow adjustment of the design if deemed appropriate by the IDNccTLD Manager(s).

D. Background material

Relevant excerpts Fast Track Process re IDN Tables

(The full document can be found at: <https://www.icann.org/en/system/files/files/idn-ccTLD-implementation-plan-28mar19-en.pdf>)

² <https://www.iana.org/help/idn-repository-procedure>

Section 3.5.1

The string must meet the criteria of the current or any subsequent versions of the [ICANN Guidelines for the Implementation of Internationalized Domain Names](#). This includes:

- All code points in a single string must be taken from the same script as determined by the [Unicode Standard Annex #24: Unicode Script Property](#).

Exceptions to this guideline are permissible for languages with established orthographies and conventions that require the commingled use of multiple scripts. However, even with this exception, visually confusable characters from different scripts will not be allowed to coexist in a single set of permissible code points unless a corresponding policy and character table are clearly defined. Further, the IDN Guidelines contain a requirement for IDN registries to develop IDN Tables. The IDN Table(s) must be submitted to ICANN along with the request for an IDN ccTLD.

The IDN ccTLD requesters are encouraged to:

1. Use and refer to already existing IDN Tables
2. Cooperate in development of the IDN Table(s).

Section 5.1.1

In the Preparation Stage, the requester undertakes preparatory work to enter the Fast Track Process. Primary preparation activities include identification, selection, and development of:

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- The development of the associated IDN Table(s) and identification of any potential variant characters. The IDN table(s) must be submitted to ICANN as part of the required supporting documentation for the request.

Section 5.3

In developing IDN Tables and associated registrations policies, requesters are encouraged to work with other language communities that are using the same (or similarly looking) script(s) as the basis for the languages they plan to support.

ICANN will provide support and general assistance in these matters. ICANN will not provide legal or business advice to countries or territories, or any potential or existing registry managers.

IDN Guidelines version 4.0 (May 2018)

<https://www.icann.org/en/system/files/files/idn-guidelines-10may18-en.pdf>

Note the glossary

Letter from the Board re Review of IDN Tables

Ask: IDN tables are included in the applications for IDN ccTLDs as part of the Fast Track process. Due to the importance of the IDN tables, ccNSO's IDN policy development process working group is encouraged to consider if these IDN tables should also be reviewed for a secure and stable design along with the applied-for string, as part of the evaluation for IDN ccTLD applications. This will benefit the secure and stable implementation of IDNs.

Letter from Botterman to Alejandra Reynoso 6 January 2022

<https://ccnso.icann.org/sites/default/files/field-attached/botterman-to-reynoso-06jan22-en.pdf>

Reponse Reynoso to Botterman 11 January 2022

<https://ccnso.icann.org/sites/default/files/field-attached/reynoso-to-botterman-11jan22-en.pdf>

E. Findings and Observations SubGroup

Discussion 19 April 2022

Original larger document.

We will re-visit next time.

Ariel: GNSO hasn't started on the second level related discussions

2 use cases for idn table:

1/ select string for IDN ccTLDs

2/ characters included in the string should have been included in the IDN table. That function is gone now. Overtaken by the RZ-LGR

Regarding the characters allowed under a registry policy. Specific for the FTP, which was not developed through a ccnso policy development process.

Explanation regarding terminology “ MUST BE HARMONISED”

“Must be harmonised”

Sarmad: if 2 tables are harmonised, they are mutually coherent. If there are 2 strings that are created as variants under the german table, they should not be created as non-variants for the spanish table, under the same TLD. Will cause end-user confusion.

Bart: make this more general?

One idn table for all of them?

Sarmad: more generic recommendation. Not for the cases where there is only 1 idn table.

When you get tld-variants, it can get extrapolated. E.g. german tld version and spanish tld version. Both are variants at the top level. German table under German variant, and spanish table under spanish variant. Extrapolation of some principle

Next level: 3 variant TLDs, and you offer 5 tables under each one of them.

Bart: other way around? By requiring idn tables, you have to maintain that variants are the same. Not just TLDs but also sTLDs.

Hadia: confused. First assumption s that we have variants at the top level, owned by same entity. Under one of the variants i am offering sTLDs. The other variant also needs to be a variant at other tld. But variants are determined by RZ-LGR? Could we use the tool for the second level too?

Bart: is not RZ-LGR, just LGR

Michael: not advisable. RZ-LGR has no digits, since they are not allowed at the 1st level. You probably wish to allow them at the second level.

Jaap: I don't see how one can have multiple tables for the same TLD

Michael: I don't see how one can have multiple tables for the same TLD

Ai-Chin: for second level. Confusing. We have no definition for harmonizing. If the cctld follows the idn guideline, that is not a problem.

Jiankang: agrees.

Sarmad: see page 1, section 4, middle of the page. Happy to put something together.

Bart: let's put this in the parking lot for the time being. Expected, but perhaps not mandatory as a recommendation?

Use case 2. Use of idn tables for the registration policy by an idn cctld manager, post delegation. What is the scope of the policy. Scope of the ccns? To whom is the policy directed?

FTP: was required to submit an idn table as part of the application process.

Michael: should only be mandatory, if it is also mandatory for the main latin script ccTLD. But it is probably not mandatory. Be synchronous.

Bart: do you think it should be mandatory? Only for idn cctld managers?

Ai-Chin: agree

Hadia: benefit of comparing the tables?

Ai-Chin: for the language. E.g. Macao has chinese language internet users. But they cannot make the idn variant table. CNNIC or TWNIC give them the variant idn tables, so they can reference. Benefit to internet users with same language

Jaap: mandatory? What happens if the registry does something completely different compared to what is published. Adherence? Compliance checks?

Sarmad: differences are not always too significant. Main motivation in having the tables in the iana repository is to allow other ccTLDs to see what is there. Brings consistency in design. Thus more consistent end-user experience.

Bart: once you got an idn table, review idn table when it is submitted. But registration policies of an idn cctld evolve over time. As a result, the idn table may evolve too. Allow other characters to be registered. Is there an intention to follow up with the initial check? Or is it up to the idn cctld manager? To update?

Sarmad: process in gTLDs. The initial idn table is reviewed and published. If the table needs to be changed, it should be reviewed again. gTLD practice.

Bart: is the registration for an idn gTLD, defined through a consensus policy?

Sarmad: consensus policy.

Michael: the content of the idn table can be decided by the registry operator. But some restrictions: validated by icann. If there are issues, icann ask the gtld operator to fix it. But they do not push you to have e.g. same variants as the root zone has. Fairly free.

Bart: over time, you can define which characters you allow for registration?

Michael: yes, after time you can add some more characters. But you need icann approval. Not sure whether there is a consensus policy.

Jaap: many gTLDs do not bother reporting the changes to icann. There are differences. Making it mandatory would have consequences.

Bart: during the next meeting we will re-capture this.

Board request with respect to review IDN Tables

<https://ccnso.icann.org/sites/default/files/field-attached/botterman-to-reynoso-06jan22-en.pdf>

>>> Background & Introduction (Sarmad)

Board appreciated the efforts. As part of the FTP, there were some elements which we looked at (stability and similarity checks). Other things recommended for ccTLDs, such as:

- Formulation of an IDN table
- Define registration at 2nd level for the ccTLD
- Idn tables to be published in iana repository
- Also to adhere to idn guidelines for the 2nd level. Cover issues such as adherence to IDNA2008 standard, not allowing script mixing.

Not clear why IDN table was submitted in the FTP. they are normally for the 2nd level. Board suggests to also reviewing the idn tables during the process. If it is not well designed, it may cause registration of labels, which can cause security issues. Identify gaps early on, by reviewing the idn table. Noted in the idn guideline (updated version to be considered by board soon).

Hadia: strings and labels determined by RZ-LGR, and a tool. What is the role of the IDN table? Role in determining allocatable and blocked variants?

Sarmad: idn tables are used to determine which domains come under the TLD. (example.tld) second level.

Yuri: just a comment. This WG is focusing on the discussions of TLDs. Why discuss the 2nd level? Perhaps not in this WG?

Bart:

Jaap: <https://www.iana.org/help/idn-repository-procedure> says: The sole purpose of the repository is to publish LGRs that have been verified as coming from representatives of domain registries. Registries that implement IDN support are strongly encouraged to use this repository, and some may be contractually required to do so by ICANN.

Tables are done by the registries.

Background material
Repository IDN Tables

- <https://www.iana.org/domains/idn-tables>

IANA Procedures IDN Tables

- <https://www.iana.org/help/idn-repository-procedure>

Final Proposed IDN Guidelines

<https://www.icann.org/en/system/files/files/idn-guidelines-10may18-en.pdf>

Version 03 (currently in use, April 2022)

- <https://www.icann.org/resources/pages/idn-guidelines-2011-09-02-en>

Letter from Board to ccNSO re review of IDN Tables

<https://ccnso.icann.org/sites/default/files/field-attached/botterman-to-reynoso-06jan22-en.pdf>

05 April

FTP applicable to ccTLDs: 2 use cases

Dennis: Is Use Case 2 limited to Fast Track processed strings, or any ccTLD string —ASCII or IDN?

Bart: did i miss any use cases?

Sarmad: variant strings identified in FTP by applicant.

Bart: requirements IDN tables under ccNSO policy?

2 major ones. Firstly around IDN guideline (v4 and subsequent). Secondly around submission in the iana idn repository.

Do you agree with the 2 use cases? To what extent should use case 2 be a policy recommendation? Or reference to a best practice/advice to ccTLDs.

Dennis: Is Use Case 2 limited to Fast Track processed strings, or any ccTLD string —ASCII or IDN?

Bart: we only talk about IDN ccTLDs. Some ASCII ccTLDs have submitted IDN tables, to indicate they allow such registrations. One ccTLD allowed almost every script, and submitted a table for each script. As long as you meet the iana repository procedures, they were accepted. Purely voluntary basis for ASCII ccTLDs. IDN ccTLDs were required to do this, because of use case 1

Dennis: what is the role of the idn tables at second level?

Not reasonable to put a burden on IDN ccTLDs and not on the ASCII strings. Differentiation does not make sense. Unreasonable.

Dennis: to be raised to the full WG?

Bart: just to trigger the discussion. This was just a starting point for drafting.

Michael: does it make sense to force that if a registry operator already has an idn table for an ascii TLD, and now wishes to have an idn table for the idn string in the same script, should they be forced to use the same table?

Bart: variants need to be requested at the start of the process. Probably requirement to use same table.

Dennis: think about those lines. What ought to be the requirements to offer a good user experience? Harmonisation of rules. Variants to be coherent. Take that angle.

Sarmad: also one of the recommendations suggested in the staff paper. If there are TLD variants at 2nd level idn tables should be harmonised. That recommendation falls for the idn variant TLDs. Michael suggested extended it to ASCII ccTLDs too. In some cases the ASCII ccTLD and the IDN ccTLD for a country/territory could be managed by different managers. That could complicate matters.

Bart: to circumvent this, we could have At least a strong advise for a consultation.

Assuming IDN table is required, what are the requirements under ccNSO policy?

Sarmad: question for WG to consider. Idn table currently submitted through FTP, are not reviewed. No feedback is provided on security/stability perspective. Only the strings are checked. Should someone also take a look at those?

Bart: see letter from Board to the ccNSO.

Documented procedures. E.g. IDN guideline v4.0

Would a reference to these guidelines work for you?

Michael: why cannot we make the guidelines a requirement? We create the rules.

Bart: 2 reasons.

- Greek allegory. You put in a policy “this guideline is required”, but the guideline itself says “this is not mandatory for you”
- Scope of a ccNSO policy. Difference with FTP. For ccnsso policy, registration policies are out of scope. E.g. whois. This is comparable

Ai-Chin: for the idn tables, not related to idn guideline. Table is related to RFC. guideline does not have influence on idn table. Just emphasis on some policies. Follow the RFC

Bart: good signal.

Bart: let's revisit at the next meeting, when we have more text

Jiankang: policy for root. 2nd level is a different scope. Ai-chin is right.

Ai-chin: case 2. Before we submitted one table. But in case 1 we already have RZ LGR.

Suggest to keep the policy simple.

Bart: to be discussed at the next meeting.

Discussion 22 March 2022

Bart: brief overview of IDN tables. How they are dealt with. Fast track process. Letter from the board of the ccnso on reviewing IDN tables.

Basic function of the idn tables. Function was over-taken by the RZ-LGR. Recommendation determines if a selected string does not meet the criteria of the RZ-LGR, it is not eligible anymore as an iddn cctld string and can therefore not be requested.

Pitinan: Sarmad is not attending currently

Bart: using the RZ-LGR and replacing the IDN table. To be confirmed at the next meeting

Bart: second function of the idn tables is around the predictability of the registration policy, the idn cctld manager policy would refer to the submitted IDN tables, as a reference for the characters. For lack of a better word, they would allow for registration. Voluntary nature of the idn tables. Not based on RZ-LGR. The selection of characters the ccTLD manager would allow. If there are script users outside the territory, it was recommended that the requesters would work with other communities that use same or similar scripts. This pre-dates the work on RZ-LGR.

Ai-Chin: you caught all points. RZ-LGR for the TLD, and IDN table for Second level for the registration

Bart: limit the discussions on idn tables. If we want to include this, it has to be only for the registration policies of the cctld managers. Here we face a fundamental problem

Is the ccnso policy remit broad enough, to turn this into a recommendation? Do you want to? Or should be transformed into an advice?

Yuri: understands. Is it understandable for all? Perhaps not for our community. Icann staff in the best position to look into all the language communities. Hope there can be a solution.

Bart: probably the next stage. This group, given its relation with the RZ-LGR, the fundamental question is whether this should go into a formal recommendation of the PDP, and therefore becomes a requirement, or an advice? Or something in between?

One way of dealing is looking more closely at the idn guidelines. Link between policy itself and the guidelines, could be a way forward. This as background to the fast track

Section 1 sets the tone of the IDN guidelines.

Second paragraph. In the guideline there is a clear distinction between the required compliance for gTLDs, and the intended use for ccTLD managers. This is a nice way to balance between the discussion we had with respect to recommendation and advice.

Jiankang: IDN guidelines. IDN table. If we say IDN table, it is the table for root LGR or second level domains. In future documents, we should clearly distinguish. For second level or root level?

Bart: goes back to Yuri's comment as well probably

Yuri: agrees with Jiankang. This discussion is all about the root zone, not about the second level

Bart: guess that the guidelines will evolve further. CcTlds are involved in the evolution. We will include a reference to the idn guidelines in the policy document as well.

Let's revisit at the next meeting. We also need to discuss what we want to include as recommendations and discuss the questions from the board.

Reading deferred until section 3 is completed. Note: IDN Guidelines version 4.0 will need to be taken into consideration.

Background material for consideration by VM

- Recommendation 4 and 5 staff paper.
- Text and use cases defined in original Board Report. See section 5.1.2, Section 5.2.1 and 5.2.2 of ccPDP4-WG proposed sections 5-9

Additional background material:

- <https://www.iana.org/domains/idn-tables>
- <https://www.iana.org/help/idn-repository-procedure>
- <https://www.icann.org/resources/pages/idn-guidelines-2011-09-02-en>

IDN Tables submitted as part of Fast Track project. In some Fast Track process. Used by IDN ccTLD managers, earlier IDN used for variants for the ccTLD label, also how as defined. Different use cases. Fast Track for second level application

Update policies and procedures to require harmonized IDN tables across IDN variant TLDs to produce a consistent set of second-level variant labels. Also, require second level variant labels to be allocated to the same registrant under all variant TLDs.

Staff Note: This item will be addressed under section 4.

With respect to second point see Section 2 recommendations 3 and 4 & 4A

TWO TLDs variant harmonization , variants , creates variant in one, should be variants

Variant in Han traditional -and simplified

Ai-Chin: procedure IDN Tables harmonized tables, misunderstanding

RZ-LGR, only own IDNccTLD

Across IDNccTLD

